Outlook and appraisal

Overview

The growth of Scottish output is holding up well as UK economic growth slows. Yet Scottish growth is likely to have been less strong in 2005 than in 2004. Growth in Scotland is now on a par with the UK. This is not simply due to the slowing of UK growth to below trend from mid 2004. Scottish economic performance has also improved. Recently quarterly growth has been slightly better than the economy's quarterly average of 0.45% since 1998. The comparative strengthening in Scottish growth is mainly due to stronger absolute and relative growth in Scottish services and robust growth in the construction sector here. The Scottish manufacturing sector is suffering from continuing weakness. But, this weakness affects some but not all industries in the sector. Chemicals, mechanical engineering, transport equipment, and paper printing & publishing

(2.9%, UK -3.1%) have all markedly outperformed their UK counterparts over the year exhibiting strong positive growth. The weak performance of Scottish manufacturing is largely accounted for by the electronics and textiles sectors. The weakness in electronics is most significant because it accounts for around 20% of value added in manufacturing.

Electronics output fell by more than 8% over the year to the third quarter 2005, and this was followed early this year by announcements of several plant closures amounting to 1500 job losses. It is understandable that such developments have promoted much concern about the future of the industry in Scotland. When compared to the UK, Scottish electronics has contracted by almost half since its last production peak in 2000q3, a reduction that is almost twice as great as the fall in UK electronics production. Irish production statistics suggest that the industry *grew* by 4% since its previous production peak in 2001q. However, we are sceptical of such data because of concerns about the effect of transfer pricing and the large extent to which the European profits of multinational in electronics – and in other sectors – are being passed through the Irish tax system thus inflating value added estimates. A focus on employment change instead indicates that electronics jobs fell by 27% over the period much the same as the fall in UK electronics employment (32%). In both Scotland and the UK the fall in jobs and output broadly moved in line. This analysis implies that Ireland has shared with Scotland and the rest of the UK many of the problems of a global downturn, and the increased company and spatial competition in the electronics sector.

Yet, the decline in electronics activity in Scotland has been almost twice that in the UK and Ireland. Our hypothesis is that Scottish electronics suffered disproportionately because of the concentration of high volume, low margin, commodity production here. This is the sort of activity that is attracted to low labour cost locations, such as Eastern Europe and China. For multinational electronic firms the main drivers of location choice are labour costs, the fiscal regime and, to a lesser extent, the degree of regulation and controls affecting, for example, labour market flexibility. But for *final product assembly operations* labour costs are probably much less important than the fiscal regime, particularly corporate taxes. This is because labour costs only amount to little more than 10% of product costs, with 80% to 90% of outlays being on component costs, which are mainly imported from low labour cost China. This explains how Ireland with its low corporation tax rate has attracted activity even against competition from low labour cost locations. But, it should be noted that the transfer pricing practices that allow profits to be redirected through activities located in Ireland seriously overstates the effect. One difficulty for Ireland is that Eastern European countries are offering low corporation tax rates that are approaching the Irish level. But, as yet, such Eastern European countries have been unable to establish the same relationship of trust and support that the Irish have with US and other multinationals.

The future for electronics production in Scotland would appear to lie in companies moving up the value chain to produce high value products requiring complex manufacturing processes where the chance of retaining IP is greater. Where the market fails there is a role for policy to encourage such developments. The stimulation of local R&D and product innovation is critical. Policy needs to seek out and encourage the attraction and development of specialised technologies, niche production and a significant installed capital base. All of which will reduce the potential for withdrawal in cyclical downturns and minimise the attractions of newly emerging low cost locations. The glory days of Scottish electronics have passed. It is highly likely that Scotland will lose any remaining low value, high volume activity in electronics.

Final product assembly will continue to be attracted to locations with a favourable fiscal regime such as Ireland and possibly Eastern Europe at a later date. But the sector is still of sufficient scale that when combined with appropriate adaptation and innovation it should continue to contribute significantly to the Scottish economy for some time to come.

Growth in the world economy is robust but there has been some weakening, especially in US growth. The UK economy has been growing below trend since mid 2004. As spare capacity begins to grow there is a strengthening case for a cut in base rates by at least one quarter per cent to 4.25%. Manufacturing performance is currently weak in the UK as well as Scotland. Future Scottish growth will depend more on service sector growth than previously expected. But the good news is that the service sector is responding and several manufacturing sectors outside textiles and electronics are performing reasonably. So, while our forecast for overall GDP growth in 2006 still remains the same as previously at 1.9%, the forecast of the sectoral components of growth has shifted appreciably. For 2007, we have raised the forecast marginally to 2.1% from 2%. Manufacturing is a little stronger, services a little weaker, construction a lot stronger than our previous forecast. In 2008, Scottish growth is further forecast to improve to an above trend 2.3%, largely on the back of robust service sector growth but with manufacturing managing to sustain weak but positive growth.

Because the balance of Scottish growth continues to shift in favour of services and relatively more than in the UK, we continue to project a reasonably healthy labour market situation. Around 30,000 jobs are expected to be added this year and in 2007 and 2008. As a result unemployment is forecast to remain broadly stable over the forecast horizon, with the ILO rate falling slightly from 5.4% in 2006, 5.3% in 2007 and 5.2% in 2008.

GDP and Output

The latest Scottish Executive GVA data suggests that Scotland's economic performance is holding up well as growth in the UK economy slows. In the third quarter 2005, Scottish GDP at basic prices rose by 0.5%, slightly faster than the 0.4% growth achieved by the UK economy during the quarter (See Figure 1). Over the year to the third quarter - last 4 quarters on preceding 4 quarters - Scottish GDP growth was broadly the same as UK GDP growth at 1.7%. Recent UK growth has been below its quarterly average since 1998 of 0.64%. In fact this below average performance has persisted for the last six quarters. Scotland in contrast is now performing slightly better than its quarterly average since 1998 of 0.45%. Setting aside the Scottish economy's weakness in the first quarter of 2005, the economy has overall grown at a somewhat stronger rate than its quarterly average for five out of six of the last quarters.

The relative strengthening of the Scottish economy both to the UK and compared to its average quarterly performance over the last seven years, reflects stronger relative growth in Scottish services – although weaker over the seven years than growth in UK services – and strong growth in the construction sector. Scottish services grew by 0.8% in the third quarter compared to 0.7% in the UK, while construction grew 1.4% at the Scottish level far in excess of UK construction growth of 0.5%. In contrast, Scottish manufacturing remains weak both absolutely and relative to the UK.

Figure 2 shows the quarterly growth of services GVA in both Scotland and the UK. What the graph reveals is that Scottish services has equalled or bettered UK service sector growth in five out of the last six quarters. Only in the first quarter of last year was the growth of Scottish services weaker at 0.32% compared to growth of 0.61% in the UK. In addition, growth in the Scottish sector has been above the quarterly average for the past seven years in three of the last six quarters. When we look further into the performance of the Scottish service sector, we can see that six out of the seven sectors into which services are disaggregated out performed their UK counterparts during the third quarter of last year. By relative size and performance the key sectors contributing to strong Scottish service sector performance in the third quarter, at least relative to the UK, were business services & real estate (1.3%, UK 1%), retail & wholesale (0.8%, UK 0.5%) and transport & communication (1.8%, UK 0.7%). When performance over the whole year to the third quarter is considered then both Scottish and UK services grew by 2.7%. Within this overall average, the leading Scottish sectors were transport & communication (4.3%), financial services (4.1%), business services & real estate (3.9%) and hotels & catering (2.8%). However, in comparison to the UK services sector a relatively stronger Scottish performance was achieved in retail & wholesale (2.7%, UK 1.3%), transport & communication (4.3%, UK 3.5%), public admin. education & health (2.4%, UK 1.9%) and hotels &

catering (2.8%, UK 2.5%). The relatively weaker Scottish sectors over the year were other services (1.2%, UK 4%), business services & real estate (3.9%, UK 4.3%) and financial services (4.1%, UK 5.3%).

Further sectoral growth detail is provided in Figure 3. The chart reveals that financial services, business services & real estate, public admin. education & health, other services and transport & communication have added the most to Scottish output in recent years since 2002. The only manufacturing sectors of substance to have added any output volume over the last three years are food & drink (2%) and chemicals (1%), with electronics losing about 16%. As these data suggest, the Scottish manufacturing sector is suffering from continuing weakness. After the downturn in electronics production from the third quarter 2000, Scottish manufacturing recovered less quickly than UK manufacturing as Figure 4 shows. While the sector is volatile and subject to the effect of shocks to demand and supply in the world economy the Scottish sector has proved less robust than its UK counterpart. In the last 12 quarters to the third quarter 2005, Scottish manufacturing growth contracted on 9 occasions, whereas in UK manufacturing GVA volumes contracted on only 3 occasions.

But, the weakness of Scottish manufacturing affects some but not all industries in the sector. The better performing Scottish manufacturing sectors over the past year were: chemicals (6.6%, UK 0.1%), engineering outside electronics – that is, mechanical engineering (4.1%, UK 4.7%) and transport equipment (6.1%, UK1.6%) – paper printing & publishing (2.9%, UK –3.1%). Of the remainder, two sectors stand out as being both absolutely and relatively weak in Scotland: textiles and electronics. Over the year to the third quarter textiles, footwear, leather & clothing contracted by 13.5% in Scotland compared to a fall of 5.8% in the UK. Electronics contracted by 8.2% here compared to a fall of 2.2% in the UK. However, textiles constitute a relatively small part (4%) of Scottish manufacturing compared to electronics, which, on 2002 weights, accounts for 20% of the manufacturing sector here.

Reflections on the performance of Scottish electronics

Recent weeks have seen several announcements of job losses in electronics plants in Scotland. In early January, the computer firm Sanmina–SCI revealed plans to close its operations in Greenock, resulting in the loss of 300 jobs. The closure of server production represents the culmination of a process of work transfer to Hungary that began not too long after 650 jobs were transferred by IBM to Sanmina – a US owned company – in an outsourcing deal three years ago. This was followed a week later by the announcement that Inventec Scotland Servers, another US company, planned to close its Hillington plant later in the year and transfer production to the Czech Republic. 370 full and part time jobs would be lost as a result of the decision. Later in January the US owned computer printer firm Lexmark announced plans to close its plant in Rosyth in Fife with the loss of 700 jobs by the end of the year. The stated reason for the closure was that it was the consequence of the worldwide fall in the demand for printer cartridges. Other jobs were also to be shed at Lexmark's Kentucky headquarters and at its UK offices in Marlow, Buckinghamshire. Finally, in the second week of February the Simclar Group, manufacturers of electronic chipboards, announced the loss of 70 jobs at its Dunfermline base. The company indicated that the jobs would be transferred to its lower-cost overseas plants.

This concentrated loss of nearly 1500 hundred jobs is a terrible blow to the people who are losing their jobs and to the wider economies of Renfrewshire, Glasgow and Fife. While it is of little immediate help to those who have lost their jobs, a better understanding of the performance of Scottish electronics is urgently required.

The Scottish electronics industry – electrical and instrument engineering – contracted by 46% in GVA volume terms over the five years between the third quarters of 2000 and 2005. And this was before the latest round of closures and contractions in the sector. What policymakers and commentators need to know is first, the nature of the decline and whether there is a specific Scottish and/or UK dimension, or whether this is a wider phenomenon affecting other western nations such as Ireland. Secondly, the possible explanations for differences in Scottish and UK performance, compared to other western nations, the countries of Eastern Europe and Asia such as China. Finally, what are the likely future trends in Scottish electronics and what policy responses are open to the Scottish and UK governments?

Comparative Performance

The scale of the decline in Scottish electronics is unquestionable. UK electronics GVA volumes declined by 27% since its 4th quarter 2000 peak, while the contraction of Scottish electronics output has been almost twice that amount – 46% – since its 3rd quarter 2000 peak. As Figure 5 reveals the track of both Scottish and UK electronics production over this period of contraction has been cyclical, with several quarters of negative growth followed by one or two quarters of positive growth. By July to September of last year, UK electronics production recovered for two successive quarters, while growth continued to be negative in the Scottish sector.

Figure 6 compares the indices of electronics production in Scotland, the UK and Ireland. Between 1995q1 and its peak in 2000q3 Scottish electronics production rose by 91%. UK electronics production rose by 58% to its peak in 2000q4, while production in Irish electronics rose by 258% to its peak in 2001q1. In the subsequent electronics

downturn from the respective peaks to 2005q3, Scottish and UK production as noted above fell by 46% and 27%, respectively. Irish electronics production, in contrast, *rose* by 4%. Production in the sector in Ireland did contract in line with the world downturn in ICT activity, but fell by 24% in three quarters to the fourth quarter 2001. Thereafter production recovered, although it took three years to 2005q1 for output to reach the peak of 2001q1.

There are difficulties in using Irish production and value added data to make comparisons with performance in other jurisdictions. It is well known that the low rate of corporation tax has led Ireland to become a tax haven for US multinationals. Through transfer pricing many foreign firms based in Ireland are able to pass most of their European generated profits through the Irish tax system so minimising taxation on their European profits. To make this objective feasible such companies must have a reasonable productive presence in Ireland, thus affording them the opportunity to adjust input and/or output prices to maximise the diversion of profit to Ireland. Such a procedure leads to measured value added differing considerably from the 'true' value added that would be expected from a plant identical to the Irish facility.

Frank Barry[1] of University College Dublin has recently published evidence on value added per person in key sectors in Ireland that are predominantly under foreign ownership. In many of these sectors, value added per person is considerably above the UK and EU15 averages, while the share of labour costs in production is significantly lower. This is especially the case in software[2], where value added per person is about 5 times the UK average. In other sectors Irish GVA per person, in relation to the average of the EU15, is 2.5 times higher in pharmaceuticals, 12 times higher in other organic basic chemicals, and 15 times higher in the manufacture of other food products. Barry points out that this latter sector largely consists of cola concentrates, with both of the world's leading soft drinks firms having a presence in Ireland. In electronics the greater size of Irish GVA employee is not as great but it is still considerable. In electronic components, it is 4 times the UK average and about 5 times the EU15 average, while in office machinery and computers it is 1.2 times the UK average and 1.15 time the EU15 average.

Barry notes that "because transfer pricing is thought to be so pervasive, Irish economists tend to eschew the use of production and value added statistics in favour of employment data in analysing the activities of the foreign sector" (p. 677). Employment data are unaffected by transfer pricing and so in the presence of such pricing practices give a more accurate indication of what is happening in the real economy.[3] Accordingly, we present data in Figure 7 on quarterly employment in the Scottish and Irish electronics industries between 1995 and 2005. What the figure shows is that employment in both Scottish and Irish electronics was affected by the global downturn in the industry. In Scotland, employment fell by 46% between the third quarter 2000 production peak and the third quarter 2005, a fall exactly equal to the percentage fall in GVA volume over the period shown in Figure 6. In Irish electronics, employment held up better than in Scotland but still fell by more than a quarter (27%) from the 2001 first quarter production peak to the third quarter of last year. This reduction in jobs is broadly similar to the job loss in UK electronics where employment contracted by around 32% from the 2000q4 production peak to 2005q3.

The apparent increase in GVA volume of 4% in Irish electronics while employment fell by 27% could be due to a dramatic improvement in productivity in the sector at a time of increased competition and tight demand. However, it is also compatible with an increase in profit shifting to low corporation tax Ireland at a time when profits in the sector globally were much under threat. If this latter explanation is correct, it suggests that Ireland has shared with Scotland and the rest of the UK many of the problems of a global downturn, and increased company and spatial competition in the electronics sector. That said there is still a need to understand why electronics employment contracted by so much more than occurred in the industry in the UK and Ireland.

Accounting for the Decline

An in-depth understanding of the absolute and relative decline in Scottish electronics production and employment since 2000 must await a fuller analysis than can be offered here. In rough terms what can reasonably be said is that about half of the contraction since 2000 may be accounted for by the 'average' effect of the global downturn and increased global competition within the sector.

The remaining half of the decline in Scottish electronics appears, from industry sources, to largely reflect the structure of the industry here. High volume, low margin, commodity products have been particularly affected. This is the sort of activity that is attracted to low labour cost locations, such as Eastern Europe and China. Faced with median weekly private sector earnings in China that are only about 5% of those in Germany, and Lithuania, Estonia, Poland, the Czech Republic and Hungary, with median labour earnings at 10%, 13%, 16%, 19% and 20% of Germany respectively, then differences in labour and other costs between western European countries are purely academic.[4] Moreover, labour, utilities and other infrastructure are increasingly of an acceptable quality in Eastern Europe at least. Much of this high volume low margin activity has now been lost to Scotland and is unlikely to return. Companies continuing in Scotland have had to restructure in favour of high value electronics, which is associated with low volumes, production complexity and high retained intellectual property.[5]

For multinational electronic firms the main drivers of location choice are labour costs, the fiscal regime and, to a lesser extent, the degree of regulation and controls

affecting, for example, labour market flexibility. But for final product assembly operations labour costs are probably much less important than the fiscal regime, particularly corporate taxes. This is because labour costs will only amount to little more than 10% of product costs, with 80% to 90% of outlays being on component costs. In these circumstances, countries in Western Europe such as Ireland that offer low corporation tax rates will be more attractive locations than other Western European locations and even more attractive than Eastern Europe. Such operations with many of their components produced in and imported from China, offer direct jobs and real economic activity. However, as noted above, the transfer pricing practices that allow profits to be redirected through activities located in Ireland can seriously overstate the effect. One difficulty for Ireland is that Eastern European countries are offering low corporation tax rates that are approaching the Irish level (12.5%): Latvia and Lithuania (15%), Hungary 18%, Poland and Slovakia (19%).[6] But, as yet, such Eastern European countries have been unable to establish the same relationship of trust and support that the Irish government has managed to create with US and other multinationals in electronics and other sectors.

Future Directions

It is highly likely that Scotland will lose any remaining low value, high volume activity in electronics. Final product assembly will continue to be attracted to locations with a favourable fiscal regime such as Ireland and possibly Eastern Europe at a later date. The market will encourage remaining companies to move up the value chain to produce high value products requiring complex manufacturing processes where the chance of retaining IP is greater. Where the market fails there is a role for policy to encourage such developments. The stimulation of local R&D and product innovation is critical. Policy needs to seek out and encourage the attraction and development of specialised technologies, niche production and a significant installed capital base. All of which will reduce the potential for withdrawal in cyclical downturns and minimise the attractions of newly emerging low cost locations. Scottish electronics will probably never return to the glory days of the mid 1990s. But with more than 30,000 employees and after a process of significant restructuring the industry will continue to contribute significantly to the Scottish economy for some time to come.

Outlook

Growth in the world economy remains fairly robust but there has been some weakening since we last reported. This is principally due to a slowdown in the growth of the US economy, which grew at a rate of only 0.3% in the final quarter of last year – the weakest quarterly rate of growth since 2002. There is some uncertainty whether this slowdown will be sustained, or whether it simply reflects once and for all effects[7] such as the impact of Katrina and the other hurricanes that hit the US last year, on the production and consumption of oil and gas, the strike at Boeing, which has affected investment, an unanticipated fall in defence spending and the ending of incentives on car purchases. US growth might therefore be expected to bounce back in the first quarter of this year but there is some uncertainty about this given the slowdown in the housing market and in construction investment and evident easing in recent leading indicators of activity. Elsewhere, the Japanese economy rebounded in the fourth quarter from the weak growth experienced in 2005 q3, while other key Asian economies such as China continue to exhibit strong growth. The Euro area, in contrast, while exhibiting a recovery of activity still remains relatively weak but growth is now expected to be around 1.9% this year.

UK economic growth while not weak has been below trend since the middle of 2004. This weakness has been attributed[8] to the effect on consumption of higher oil prices, rising effective tax rates on labour incomes, a sharp slowdown in the growth of house prices and rising short term interest rates prior to mid 2004. Business investment continues to be weak, while net trade is contributing negatively to growth. Growth in 2005 was 1.8% but is expected to rise to 2.1% in 2006 and 2.5% in 2007. If UK trend growth is now generally believed to be around 2.7%, then this implies that below trend growth is in prospect for a couple of more years at least. This will lead to a growth in spare capacity, a continuation in the weakening of the employment rate and a rise in unemployment, although by modest proportions.

Against this background of relative buoyancy in the world economy and projected below trend growth in the UK, the Scottish economy is currently performing on a par with the UK. However, this is not simply a reflection of the UK growth slowdown. We noted at the beginning of this *Outlook & Appraisal* that recent UK growth has been below its quarterly average since 1998 of 0.64%, while recent Scottish growth has been slightly better than its quarterly average since 1998 of 0.45%. However, while the Scottish service sector is exhibiting relative strength the performance of manufacturing in Scotland is a cause for concern, even though its weak performance is mainly focused on electronics and textiles. Added to this is the sharp worsening of growth in UK manufacturing during the fourth quarter of last year where output dropped 1% on the third quarter and by 2% on a year previously. It remains to be seen, whether such weakness in UK manufacturing will also be found in Scottish manufacturing in the fourth quarter. Our view is that further weak growth should be expected, which will continue into the first half of this year, in part reflecting the spate of electronics closures announced in January and February.

For these reasons, we are adjusting our forecast for Scottish manufacturing in 2006 down from growth of 0.7% to 0.4%. Conversely, the continued buoyancy of Scottish services is reflected in our revised forecast for 2006 in the

sector of 2.5% growth up from our forecast of 2.2% in the previous *Commentary.* So, while our forecast for overall GDP growth in 2006 still remains the same as previously at 1.9%, the forecast of the sectoral components of growth has shifted appreciably. In addition, we are downgrading our forecast for agriculture from 1.6% to 0.4% in 2006 and slightly upgrading our construction forecast from 2% to 2.3%. While growth of 2.3% is not unreasonable it represents a much slower expected outturn than growth in the sector of 5.5% in 2003 and 2004.

For 2007, we have raised the forecast marginally to 2.1% from 2%. Manufacturing is a little stronger, services a little weaker, construction a lot stronger than our previous forecast. In 2008, Scottish growth is further forecast to improve to an above trend 2.3%, largely on the back of robust service sector growth but with manufacturing managing to sustain weak but positive growth.

Because the balance of Scottish growth continues to shift in favour of services and relatively more than in the UK, we continue to project a reasonably healthy labour market situation. Around 30,000 jobs are expected to be added this year and in 2007 and 2008. As a result unemployment is forecast to remain broadly stable over the forecast horizon, with the ILO rate falling slightly from 5.4% in 2006, 5.3% in 2007 and 5.2% in 2008.

The main threats to the Scottish economy rest on the outturn for oil prices with high prices sustained beyond the medium term, the strength of the recovery in the Euro area, any weakening in US economic growth and the strength of recovery in the UK economy. We are persuaded by the arguments advanced by one of the external members of the MPC, Stephen Nickell[9], that there is a pressing need for a base rate cut from 4.5% to 4.25%. Nickell bases his argument on the developing extent of spare capacity in the UK economy, and the reduced threat of second round effects on wages and earning from the high price of oil. In his view, without a further stimulus to demand, underlying inflation will remain below target and the economy will grow below trend. We might add that a cut in base rates could also help boost investment in manufacturing. And, in putting some downward pressure on the exchange rate, it would offer a much-needed boost to manufacturing exports in both Scotland and the UK.

Brian Ashcroft
7 March 2006

Endnotes

[1] F Barry (2005) *FDI, transfer pricing and the measurement of R&D intensity*, Research Policy 34, pp 673-681.

[2]Some of the world's largest software companies, such as Microsoft, have operations in Ireland.

[3]In the same way that, in such circumstances, GNP is preferred to GDP, with the former being GDP minus net income sent abroad.

[4]Data for February 2005 sourced from The Federation of European Employers at http://www.fedee.com/payinasia.shtml

[5]See *Review of High Value Electronics Manufacturing in Scotland*, May 2005, O'Herlihy & Co Ltd www.oherlihy.com

[6]Data sourced from *Finfacts Ireland* http://www.finfacts.com/irelandbusinessnews/publish/article_10003995.shtml

[7]Noted in the Minutes of the February MPC meeting http://www.bankofengland.co.uk/publications/minutes/mpc/pdf/2006/mpc0602.pdf

[8]See Stephen Nickell *Monetary Policy, Demand and Inflation*, Bank of England, January 2006.

[9]Nickell *op cit* http://www.bankofengland.co.uk/publications/speeches/2006/speech266.pdf

Figure 1: Scottish and UK Quarterly GDP Growth, 1998q2 to 2005q3

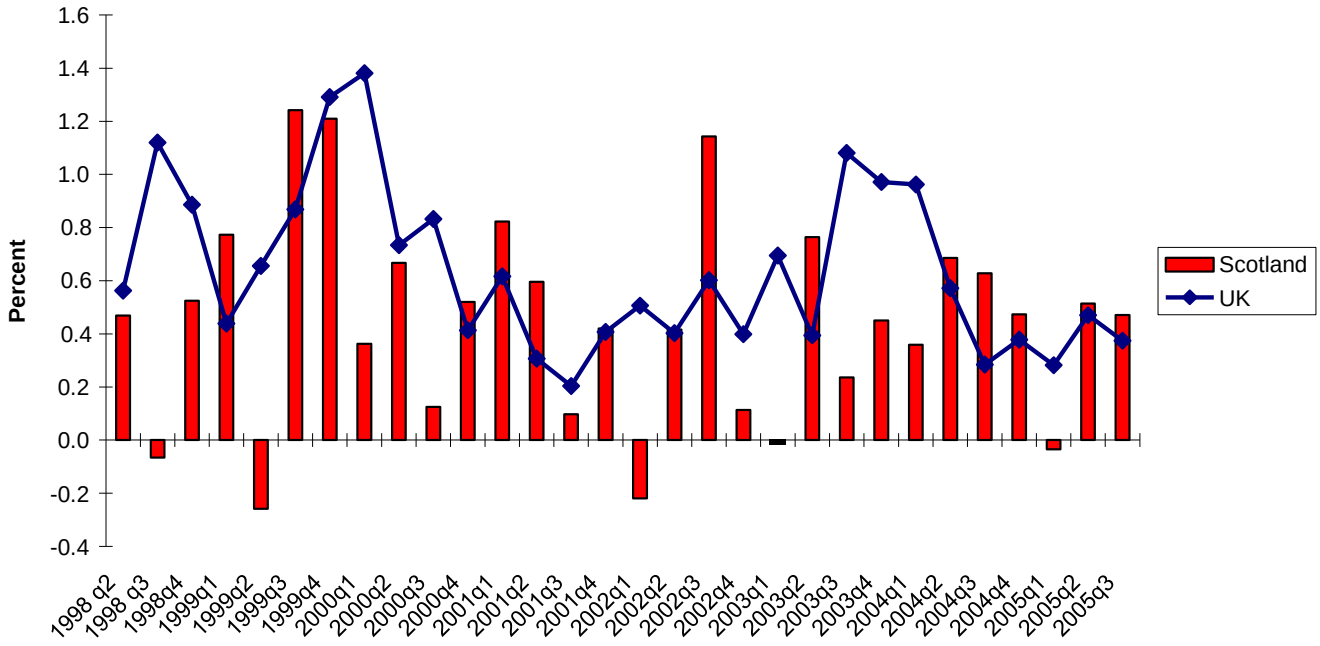

Figure 2: Scottish and UK Services GVA Growth at constant basic prices 1998q2 to 2005q1

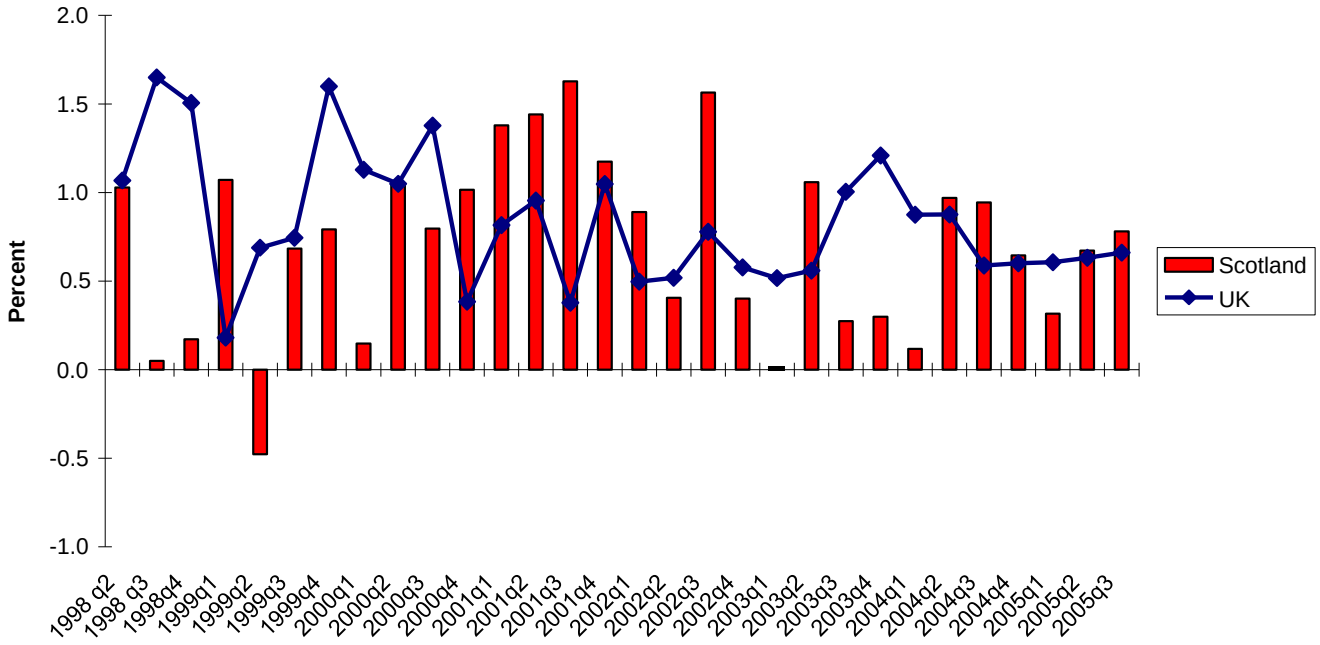

Figure 3: Growth of Key Sectors 1998Q1 to 2005Q3

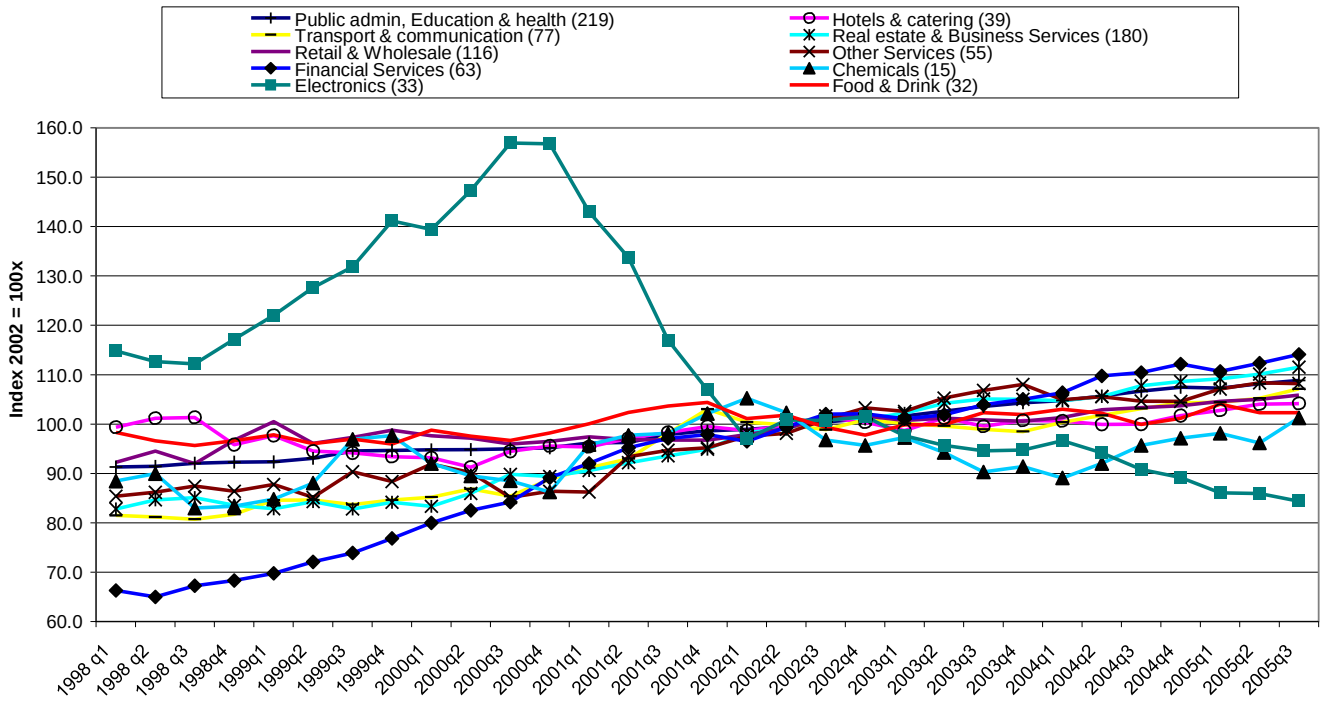

Figure 4: Scottish and UK Manufacturing GVA Growth at constant basic prices 1998q2 to 2005q3

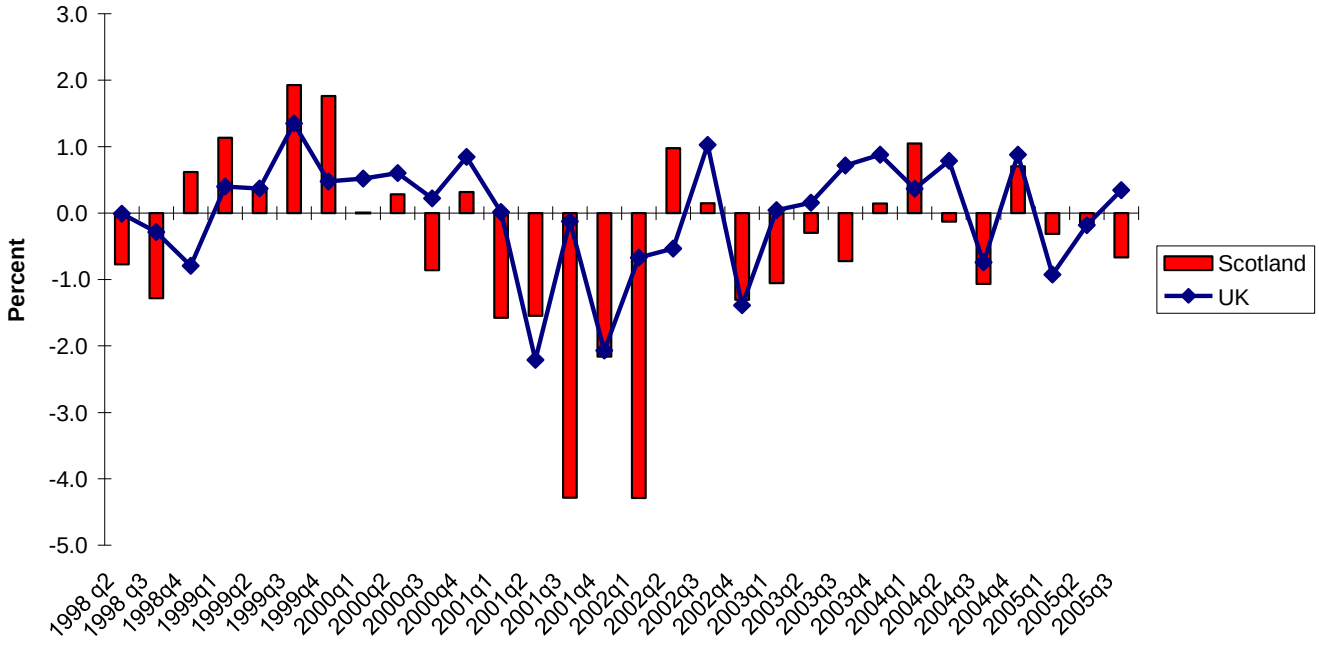

Figure 5: Scottish and UK Electronics GVA Volume Growth 1998q2 – 2005q3

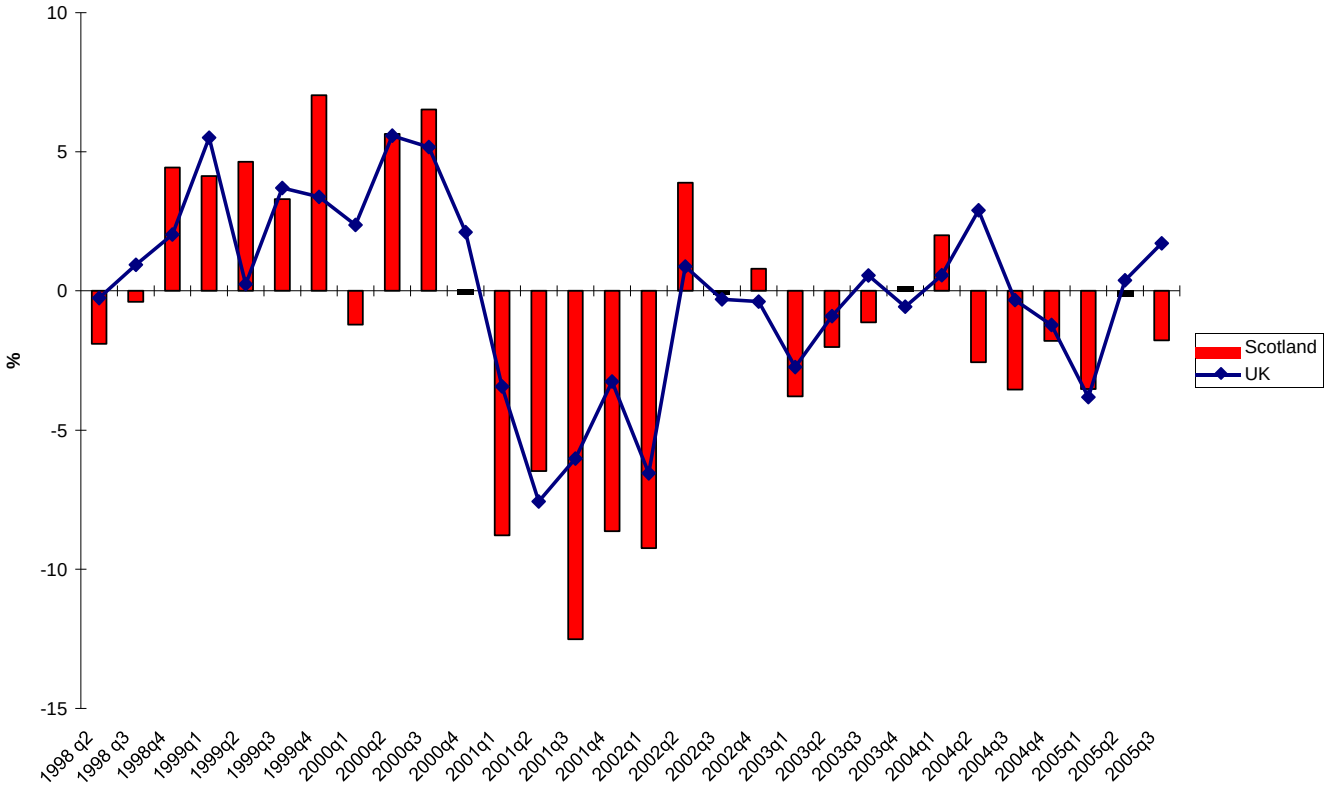

Figure 6: Electronics Production in Scotland, UK and Ireland, 1995q1 to 2005q3

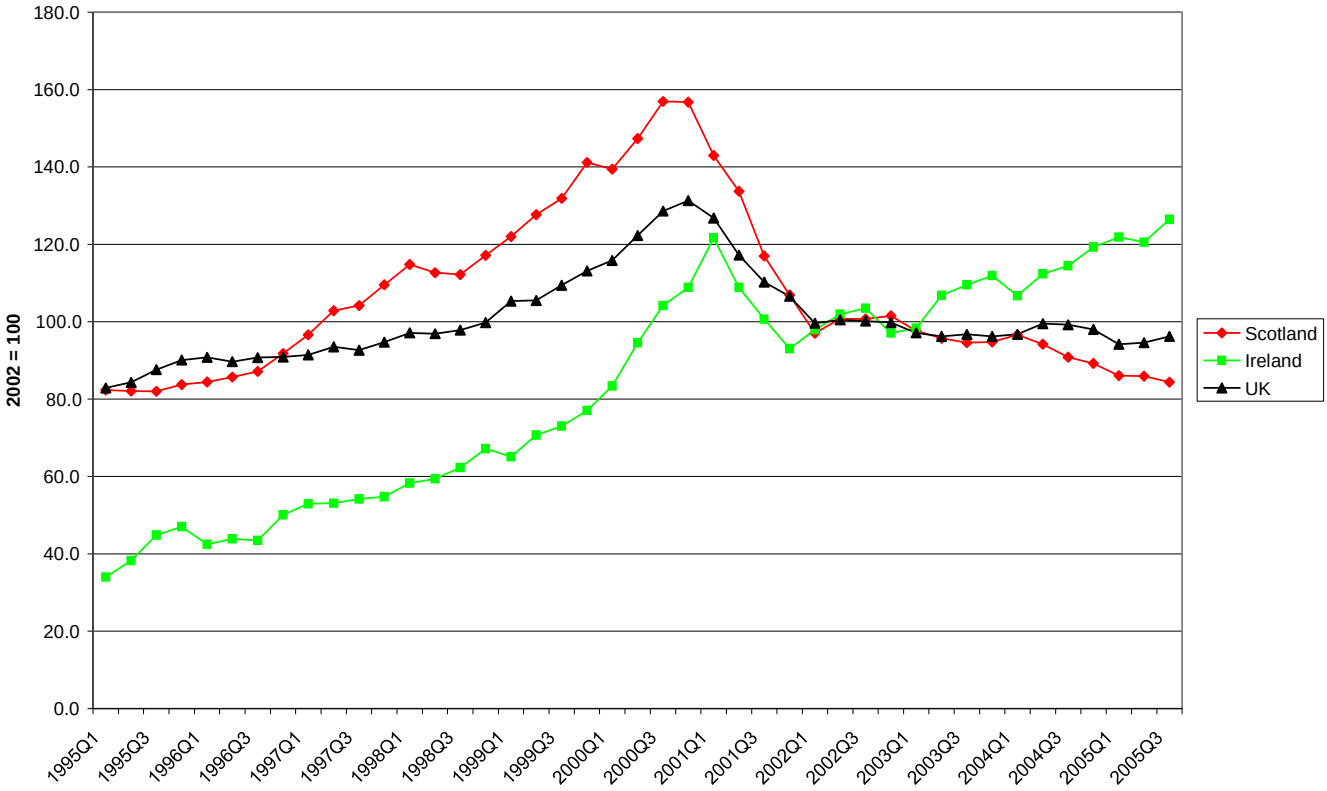

Figure 7: Electronics employment in Scotland and Ireland 1995-2004 quarterly